

By: Akio ITOH

Serial No. 09/594,091
Attorney Docket: 000761

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (Currently Amended): A semiconductor device, comprising:

~~a contact;~~

a transistor having a first impurity region and a second impurity region formed on a semiconductor substrate, and a gate electrode formed ~~on~~ over the semiconductor substrate;

a first insulating film ~~on top of~~ formed over the transistor;

a capacitor formed ~~on~~ over the first insulating film, the capacitor having a dielectric film made of one of a ferroelectric material and a high-dielectric material, and an upper electrode and a lower electrode positioned to put the dielectric film therebetween; and

a silicon oxide film ~~residing on top of~~ formed over the capacitor to form a planarized surface;

wherein nitrogen resides all over the planarized surface of the silicon oxide film;
and

a wiring formed over the silicon oxide including nitrogen.

Claim 2 (Currently Amended): A semiconductor device according to claim 1, wherein cavities are formed ~~in an~~ inside of the silicon oxide film.

By: Akio ITOH

Serial No. 09/594,091
Attorney Docket: 000761

Claim 3 (Currently Amended): A semiconductor device according to claim 1[[.]], further comprising,

a second insulating film formed between the capacitor and the silicon oxide film;
and a wiring formed on the second insulating film.

Claim 4 (Currently Amended): A semiconductor device according to claim 2, further comprising:

a [[-]] third insulating film formed on the silicon oxide film.

Claim 5 (Currently Amended): A semiconductor device, comprising:

~~a contact;~~

a transistor having a first impurity region and a second impurity region formed on a semiconductor substrate, and a gate electrode formed ~~on~~ over the semiconductor substrate;

a first insulating film ~~residing on top of~~ formed over the transistor;

a capacitor formed ~~on~~ over the first insulating film, the capacitor having a dielectric made of one of ferroelectric material and a high-dielectric material, and an upper electrode and a lower electrode positioned to put the dielectric film therebetween;

a second insulating film formed ~~on~~ over the capacitor;

a local interconnection formed ~~on~~ over the second insulating film to electrically connecting the upper electrode of the capacitor with the first impurity region;

a third insulating film formed ~~on~~ over the local interconnection and the second insulating film;

By: Akio ITOH

Serial No. 09/594,091
Attorney Docket: 000761

a first wiring formed ~~on~~ over the third insulating film and electrically connected to the second impurity region via a hole which is formed ~~on~~ over the first insulating film, the second insulating film, and the third insulating film;

a fourth insulating film ~~on top of~~ formed over the first wiring to serve an upper planarized surface,

wherein nitrogen resides all over the upper planarized surface of the fourth insulating film; and

a second wiring formed ~~on~~ over the fourth insulating film including nitrogen.

Claim 6 (Currently Amended): A semiconductor device according to claim 5, wherein cavities, a part of which are exposed from the upper surface of the fourth insulating film, are formed ~~in an~~ inside of the fourth insulating film.

Claim 7 (Original): A semiconductor device according to claim 6, wherein the cavities are located in regions between a plurality of capacitors.

Claim 8 (Original): A semiconductor device according to claim 6, further comprising:

a fifth insulating film formed on the fourth insulating film to cover the cavities which are exposed from the upper surface of the fourth insulating film.

Claim 9 (Original): A semiconductor device according to claim 5, wherein the second wiring is connected to the first wiring via the hole formed in the fourth insulating film.

By: Akio ITOH

Serial No. 09/594,091
Attorney Docket: 000761

Claim 10 (Original): A semiconductor device according to claim 5, wherein the third insulating film and the fourth insulating film are formed of a silicon oxide film.

Claim 11 (Original): A semiconductor device according to claim 5, wherein an upper surface of the first insulating film is a planarized surface.

Claim 12 (Currently Amended): A semiconductor device, comprising:

~~a contact;~~

a transistor having a first impurity region and a second impurity region formed ~~on~~ over a semiconductor substrate, and a gate electrode formed ~~on~~ over the semiconductor substrate;

a first insulating film ~~on top of~~ formed over the transistor;

a capacitor formed ~~on~~ over the first insulating film, the capacitor having a dielectric film made of one of a ferroelectric material and a high-dielectric material, and an upper electrode and a lower electrode positioned to put the dielectric film therebetween; and

a second insulating film ~~on top of~~ formed over the capacitor to serve as an upper planarized surface;

wherein nitrogen resides all over the upper planarized surface of the second insulating film~~[[.]]~~; and

a wiring formed over the second insulating film including nitrogen.